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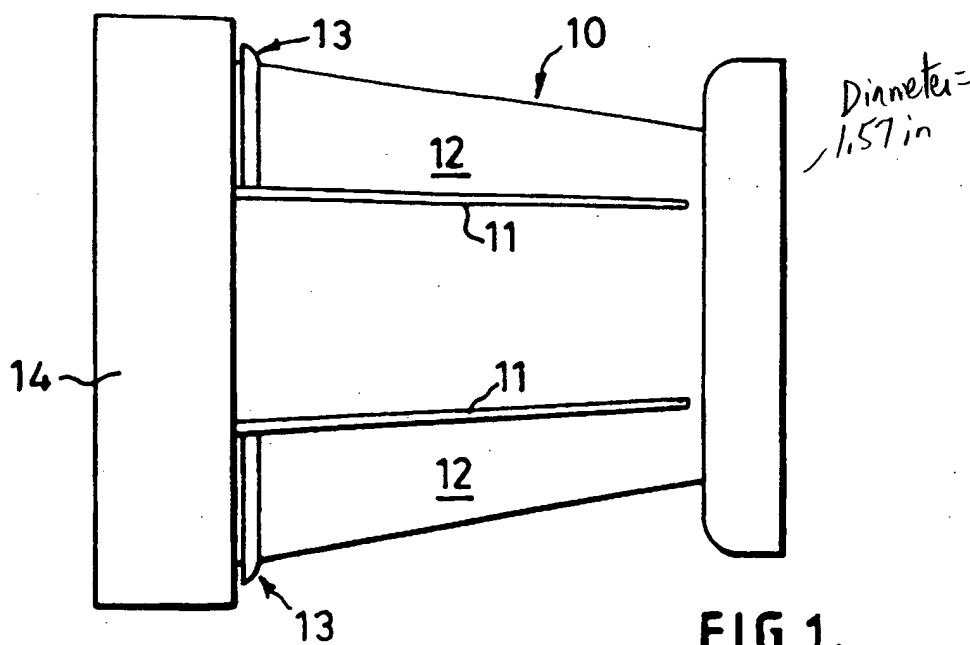
(56) Documents Cited

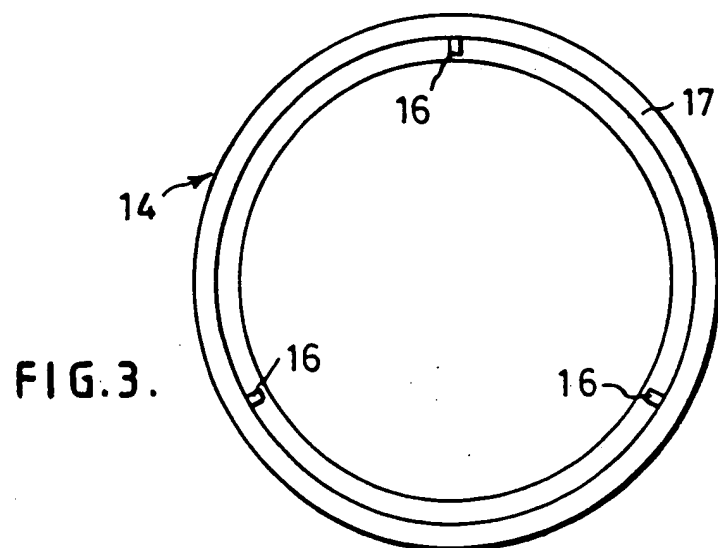
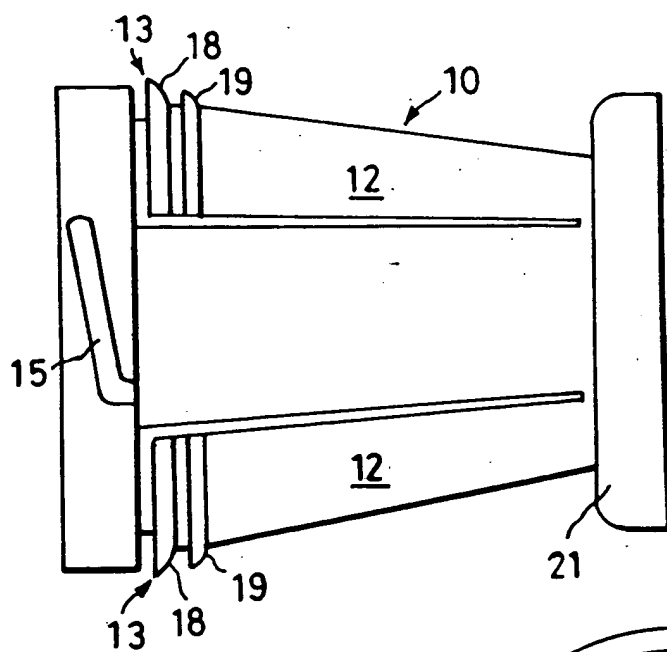
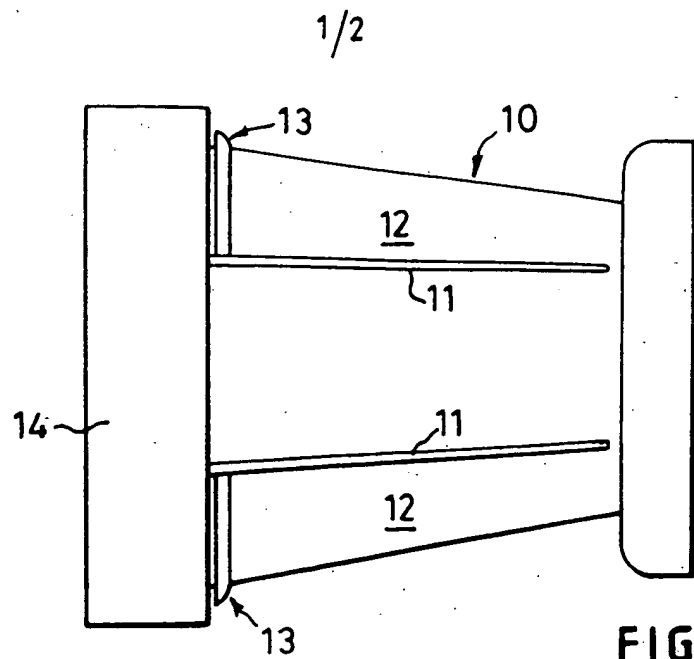
**GB 2052970 A US 4848007 A**

(58) Field of Search

**UK CL (Edition L) A4V V29D****INT CL<sup>5</sup> A45D 20/12****(54) Adaptor for a hair dryer**

(57) An adaptor for a hair dryer which allows other attachments to be fitted to the nozzle of the hair dryer consists of a conically shaped body 10 with legs 12 formed between pairs of slots 11 extending along the body. The legs 12 are resilient and free to move radially at their ends 13 with respect to a central axis of the body 10. A collar 14 fits over one end of the body 10 which when rotated a few degrees causes the free ends 13 to move radially. As a result, the legs 12 can be urged inwards to grip around the peripheral surfaces of a hair dryer nozzle, entered into the body 10, to secure the adaptor to the nozzle.

**FIG.1.**



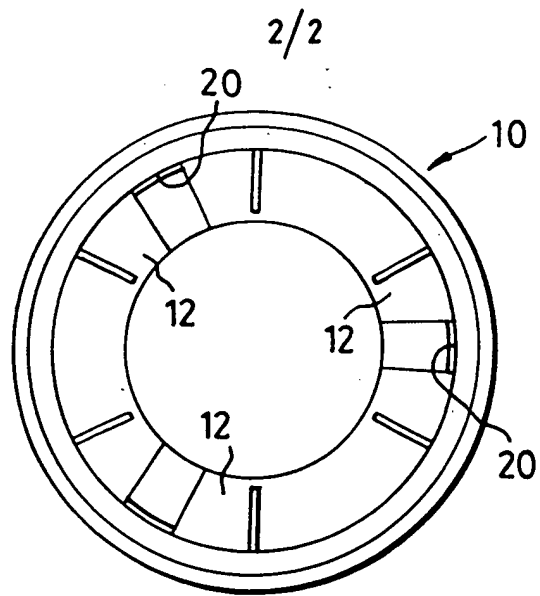


FIG. 4.

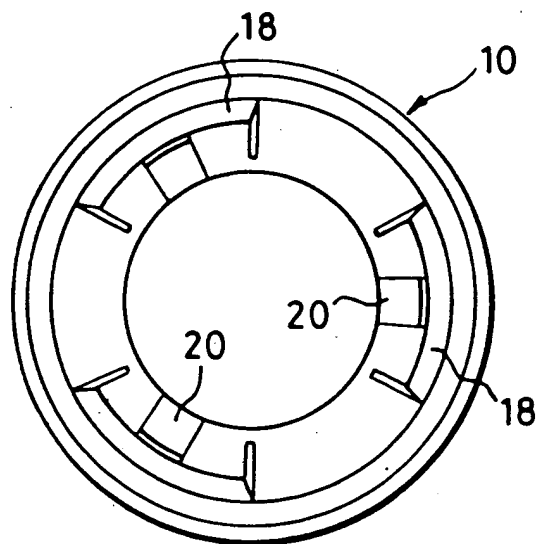


FIG. 5.

Hair Drivers

The invention relates to hair dryers.

5 The invention relates more particularly to an adapter for use with hair dryers to provide or enable a number of attachments to be fitted to an output air nozzle of such dryers. Such attachments include diffusers, pulsators, combs, brushes and piks.

10 Generally, hair dryers are formed with a range of different diameter but generally circular output nozzles so that there is a clear advantage to have an adapter which will fit securely to a number of different sizes of nozzles.

It is an object of the invention to provide such an adapter.

15 According to the invention there is provided a nozzle adapter for hair dryers comprising a hollow conically shaped body having a central axis with a first end of greater diameter than a second end, in which the walls are formed with a number of pairs of slots evenly distributed around the central axis and extending generally parallel thereto to form a movable leg between each pair of slots anchored at one end with a free end adjacent the first end, and a collar which fits over the first end and is arranged to rotate relative thereto and so as urge the free ends of the legs towards the central axis.

20

The free ends of the legs may be provided with upstanding sloping lips and the collar have a rim which engages the lips when the collar is rotated to move axially towards the first end so as to move the legs radially towards the central axis.

The legs may have upstanding stops disposed adjacent the lips positioned towards the second end arranged to engage the rim to prevent the collar moving towards the second end beyond the stops.

The collar may have inwardly pointing pins and the first end provided with respective angled slots to receive the pins and so cause the collar to move axially when the collar is rotated.

The slots may be open at one end to allow pins to slide out of the slots and the collar to be completely removable from the first end.

Resilient pads may be mounted on and extend along the inner surface of each leg.

A hairdryer according to the invention will now be described by way of example with reference to the accompanying drawings in which:-

Figure 1 is a side view of an assembled adapter;

Figure 2 is a side view of a main body of the adapter;

Figure 3 is an end view of a collar of the adapter;

Figure 4 is an end view of the main body in an 'open' position; and

5      Figure 5 is an end view of the main body in a 'closed' position.

Referring to the drawing, in Figure 1 the adapter has a hollow conical main body 10 with six slots 11 extending parallel to the central axis of the body 10 and substantially the length of the body. Each pair of slots forms a leg 12 between those slots which has a respective free end 13 adjacent a first larger diameter end of the main body. A relatively rotatable collar 14 fits over the first end.

15      In Figure 2, a slot 15 is shown in the peripheral surface of the first end. The slot 15 is open at one end to receive pins 16 (see Figure 3) provided on an inner surface of the collar 14. When the collar 14 is mounted on the first end and rotated relative thereto the pins 16 are urged along the slots 15 to move the collar axially and as a result a lower edge 17 of the collar bears against chamfered upstanding lips 18 to urge the free ends of the legs a small distance towards the central axis.

Further lips or stops 19 are provided on the legs 12 which prevent the lower edge 17 of the collar 14 moving axially beyond the stops away from the first end in normal use. However, during assembly or to remove the collar 14 completely from the main body 10, the legs 12 can be resiliently depressed inwards to allow the lower edge 17 to pass over the stops 19.

In Figures 4 and 5, the legs 12 each have a strip of rubber material 20 extending along their lengths which in use bear against an outer peripheral surface of the nozzle of a hair dryer (not shown) to which the adapter is attached. Figure 4 shows the open position and Figure 5 shows the closed position. In use, a hair dryer nozzle is entered into the first end of the main body when the body is in the open position, until the forward end of the nozzle touches against the strips 20. The collar 14 is then rotated to urge and hold the legs 12 towards the central axis of the main body. This action closes the main body and securely attaches the adapter to the outer surface of the nozzle as required.

It will be noted that there are preferably three legs 12, as described, evenly distributed around the central axis of the main body 10. The legs 12 and the rigid connections extending the length of the body formed between the legs are generally the same width, but they can be of different widths. In any event, by providing substantially wide

rigid connections, the adapter remains physically stable and firm to enable the adapter to be remain securely attached in use to the hair dryer nozzle. It will also be noted that the slots 15 are formed in the first end opposite each of the rigid connections where the usual forces required to urge the collar axially are best accommodated when the adapter is being closed to grip the nozzle.

The main body 10 and the collar 14 are preferably formed of polycarbonate plastics material or glass-fibre reinforced nylon material. As will be appreciated, the described arrangement allows these parts to be formed separately and easily fitted together to form the adapter.

The adapter may be fitted or formed with various attachments joined at the smaller diameter end 21 to the main body 10. Typically, the adapter has an inner diameter of about <sup>(1.57 in)</sup> 40 mm. at its smaller diameter end and 58 mm at its larger diameter or first end. As such, the adapter will fit a wide range of hair dryer nozzles generally in use. An adapter having a smaller diameter of about 52 mm and a larger diameter of about 70 mm can also be provided for use with an appropriate range of larger diameter nozzles presently also used in the hair care industry.



Claims

1. A nozzle adapter for hair dryers comprising a hollow conically shaped body having a central axis with a first end of greater diameter than a second end, in which the walls are formed with a number of pairs of slots evenly distributed around the central axis and extending generally parallel thereto to form a movable leg between each pair of slots anchored at one end with a free end adjacent the first end, and a collar which fits over the first end and is arranged to rotate relative thereto and so as urge the free ends of the legs towards the central axis.

2. An adapter according to claim 1, in which the free ends of the legs are provided with upstanding sloping lips and the collar has a rim which engages the lips when the collar is rotated to move the lips axially towards the first end so as to move the legs radially towards the central axis.

3. An adapter according to claim 2, in which the legs have upstanding stops disposed adjacent the lips positioned towards the second end arranged to engage the rim to prevent the collar moving towards the second end beyond the stops.

4. An adapter according to any one of claims 1 to 3, in which the collar has inwardly pointing pins and the first

end is provided with respective angled slots to receive the pins and so cause the collar to move axially direction when the collar is rotated.

5        5.    An adapter according to claim 4, in which the slots are open at one end to allow pins to slide out of the slots and the collar to be completely removable from the first end.

10       6.    An adapter according to any one of claims 1 to 5, including resilient pads mounted on and extending along the inner surface of each leg.

7.    An adapter according to any one of claims 1 to 6, formed of polycarbonate plastics material.

8.    An adapter according to any one of claims 1 to 6, formed of fibre-glass reinforced nylon material.

15       9.    An adapter substantially as herein described with reference to the accompanying drawings.

Relevant Technical Fields

(i) UK Cl (Ed.L) A4V (V29D)

(ii) Int Cl (Ed.5) A45D 20/12

Search Examiner  
N A FRANKLIN

Date of completion of Search  
7 DECEMBER 93

Databases (see below)

(i) UK Patent Office collections of GB, EP, WO and US patent specifications.

(ii)

Documents considered relevant following a search in respect of Claims :-  
1-9

Categories of documents

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|---|--|
| <p>X: Document indicating lack of novelty or of inventive step.</p> <p>Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.</p> <p>A: Document indicating technological background and/or state of the art.</p> | <p>P: Document published on or after the declared priority date but before the filing date of the present application.</p> <p>E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.</p> <p>&amp;: Member of the same patent family; corresponding document.</p> |
|---|--|

Category	Identity of document and relevant passages	Relevant to claim(s)
A	GB 2052970 A (HELENE CURTIS) Note gripping means 17, 117 in Figures 2, 6	1
A	US 4848007 (HELEN OF TROY) Note gripping means 28, 32, 34 in Figure 3	1

Databases: The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).